SHRP 2 Project R15-B: Identification of Utility Conflicts and Solutions

Civil Integrated Management
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Presentation Outline

- Background and research objectives
- Research products
- Anticipated value and implementation cost
- Answers to today's questions
- Pilot implementation

Utility Conflict Solution Strategies

- Remove, abandon, or relocate utilities in conflict
  - Relocating utilities NOT ALWAYS the best or most cost-effective solution
- Modify transportation facility
- Protect-in-place utility installation
- Accept an exception to policy

Research Objectives

- Utility conflict matrix (UCM): Important tool for managing utility conflicts
- Objectives:
  - Review trends and identify best UCM practices
  - Develop a recommended UCM approach and document related processes
  - Develop training materials
  - Develop implementation guidelines

SHRP 2 R15-B Research Products

- Prototype 1: Compact, standalone UCM
- Prototype 2: Utility conflict data model and database
- One-day UCM training course
- Implementation guidelines

Prototype 1: Utility Conflict Matrix

- MS Excel format, includes drop-down lists
- UCM spreadsheet is the product

Utility Owner and/or Contact Name	Conflict ID	Drawing or Sheet No.	Utility Type	Size and/or Material	Utility Conflict Description	Start Station
AT&T	1	U-1	Telephone	Fiber Optic	Conflict with construction of frontage road widening.	21+00

End Station	Start Offset	End Offset	Utility Investigation Level Needed	Test Hole	Recommended Action or Resolution	Estimated Resolution Date	Resolution Status
22+00	45' Lt	45' LT	QLC		Relocation before construction.	3/8/2010	Utility conflict identified.

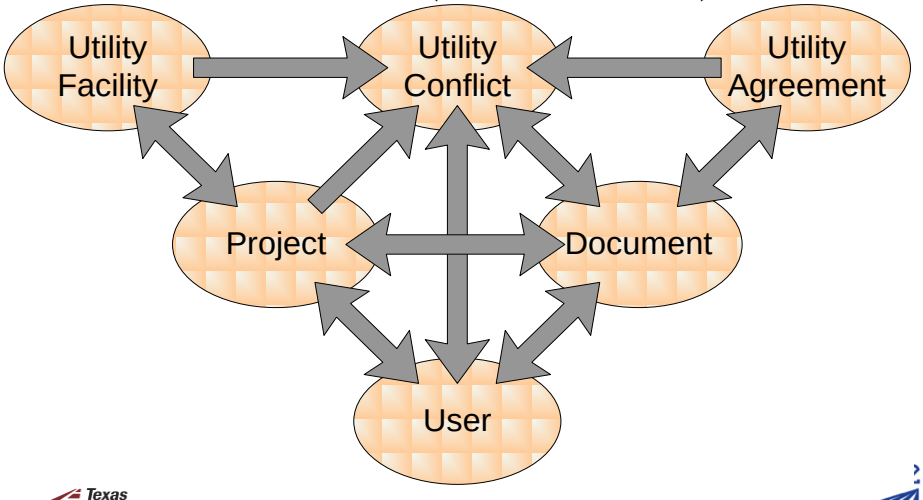
Prototype 1: Cost Estimate Analysis

- MS Excel format, includes drop-down lists

Alternative Number	Engineering Cost (Utility)	Direct Cost (Utility)	Engineering Cost (DOT)	Direct Cost (DOT)	Total Cost	Feasibility	Decision
0	$ 10,375.00	$ 63,875.00	$ -	$ -	$ 74,250.00	Yes	Selected
1	$ 7,875.00	$ 32,375.00	$ -	$ -	$ 40,250.00	No	Rejected
2	$ -	$ -	$ 95,375.00	$ -	$ 95,375.00	No	Rejected
3	$ -	$ -	$ -	$ -	$ -	No	Rejected
4	$ 10,375.00	$ 63,875.00	$ -	$ -	$ 74,250.00	No	Rejected

Prototype 2: Data Model and Database

- Formal data model (ERwin format)



Prototype 2: Example (Prototype 1)

Utility Conflict Matrix Developed/Revised By: _____ **Date:** _____

Reviewed By: _____ **Date:** _____

End Offset	Utility Investigation Level Needed	Test Hole No.	Recommended Action or Resolution	Responsible Party	Estimated Resolution Date	Resolution Status	Cost Analysis
45' Lt	QLC		Relocation before construction.	U	3/8/2010	Utility conflict identified	Detail
37' Rt	QLC		Relocation before construction.	U	3/8/2010	Utility conflict identified	Detail
48' Rt	QLC		Relocation before construction.	U	3/8/2010	Utility conflict identified	Detail
48' Rt	QLC		Relocation before construction.	U	3/8/2010	Utility conflict identified	Detail
49' Lt	QLB		Design change.	D	3/8/2010	Utility owner informed of utility conflict	Detail

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Prototype 2: Example (Prototype 1)

ution Alternatives

e Analysis

Date: 11/24/2010

Project Owner: Texas Department o
Project No.: 1234-56-789
Project Description: Road construction pr
Highway or Route: I-10 Katy Freeway

Conflict ID:	1
Utility Owner:	AT&T
Utility Type:	Telephone
Size and/or Material:	Fiber Optic
Project Phase:	60% Design

Alternative Number	Alternative Description	Party	Engineering Cost (Utility)	Direct Cost (Utility)	Engineering Cost (DOT)	Direct Cost (DOT)	Total Cost	Feasibility	Decision
0	Relocation before construction.	No c no a	$10,375.00	$63,875.00	$0.00	$0.00	$74,250.00	Yes	Selected
1	Protect in-place.		$7,875.00	$32,375.00	$0.00	$0.00	$40,250.00	No	Rejected
2	Design change.		$0.00	$0.00	$95,375.00	$0.00	$95,375.00	No	Rejected
3	Exception to policy.		$0.00	$0.00	$0.00	$0.00	$0.00	No	Rejected

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Prototype 2: Other Potential Reports

- All utility conflicts associated with company X (project, corridor, or timeframe)
- Average conflict resolution time for type X utilities
- All utility conflicts with resolution time >100 days
- Customized UCMs for individual utility companies
- Utility certification for inclusion in PS&E package

Utility Conflict Event Tracking

0	Utility conflict identified	15	Required adjustment completion
1	Comment created	16	Estimated adjustment completion
2	Utility owner informed of utility conflict	17	Scheduled adjustment completion
3	Utility conflict resolved	18	Notice to proceed to utility owner
4	Utility owner acknowledges receipt of document	19	Adjustment construction start
		20	Adjustment construction end
5	Document requested	21	Permit application
6	Document sent	22	Permit approved
7	Document received	23	Exception requested
8	Document reviewed	24	Exception approved
9	Document certified	25	Plans sufficient sent to utility owner
10	Document approved	26	30-day notice submitted
11	Document uploaded	27	90-day notice submitted
12	Document review, comment, and appro	28	Utility conflict resolution strategy selected
13	Utility coordination meeting	29	Utility relocation under construction
14	ROW cleared for adjustment	30	Utility conflict archived

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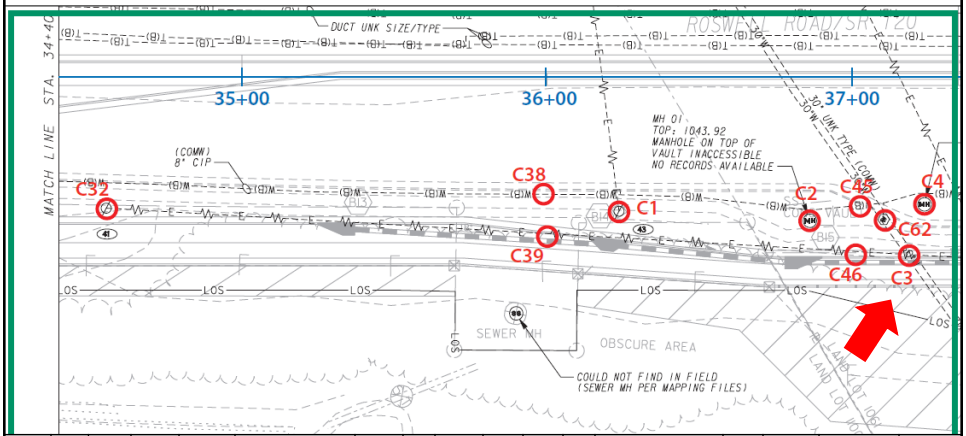
SHRP2 STRATEGIC HIGHWAY RESEARCH PROGRAM

One-Day UCM Training Course

- Lesson plan (6 lessons)
- Presentation materials (PowerPoint)
- Presenter notes
- Participant handouts
  - Handouts, sample project plans, UCM templates
- Companion CD
  - All training materials, including UCM
  - Prototype utility conflict database

Hands-on Utility Conflict Analysis



Utility Owner	ID	Sheet No.	Utility Type	Size/ Material	Utility Conflict Description	Start Sta.	End Sta.	Start Offset	End Offset	Inv. Need	Test Hole	Recommended Action	Rsp. Party	Est. Res. Date	Res. Status	Cost Analysis
	C3	1	WM	30"	Proposed 18" drainage pipe would cross WM.	37+20		60' Rt		QLA	3	Review possibility of adjusting drainage pipes up to avoid conflict, lowest structure (B13) is at 5.6'.	D	n/a	Utility conflict identified.	

Anticipated Value and Implementation Cost

Implementation Product	Value	Cost
Prototype 1 (standalone UCM, MS Excel)	20	$
UCM training course	40	$$
Prototype 2 (standalone implementation, MS Access)	50	$$$
Prototype 2 (enterprise-level implementation)	80	$$$$

"So What" Questions

- What's different about these new tools?
- What new capabilities will they provide?
- Will they be more difficult to use?
- Will they require special training or operation only by specially-trained people?
- How will the costs to use these tools compare with those of today's tools?
- When will these new tools likely be commercially available?

Answers

- Systematic treatment of utility conflicts
- More effective project development process integration
- Easy to use given a correct implementation
- Training for all stakeholders is highly recommended to realize benefits of UCM implementation
- Slightly higher front-end costs but potentially much lower costs at the end
- Research products available as soon as SHRP 2 publishes them

Pilot Implementation

- Four tasks over a 14-month period
  - Schedule meeting with key stakeholders
  - Select state DOT and coordinate with agency-wide task force
  - Conduct UCM training course for selected users
  - Assist users with full implementation of Prototype 1 and limited implementation of Prototype 2

Pilot Implementation

- Four tasks over a 14-month period
  - Developed recommended revisions to research products and processes
  - Prepare draft final report
  - Prepare final report

Additional Information

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